

*Q C 7* 1. (Currently Amended) A method of verifying a projected image within a three-dimensional view plane of an augmented-reality display system as a preselected movable real object spaced from a user's viewpoint by a first distance, whereby the object may be employed as an interface tool for the system, comprising steps of:

identifying a representative characteristic of the movable real object within the three-dimensional view plane wherein the representative characteristic comprises shape and location of the object and is exclusive of preselected marked standards, such as registration marks and printed identifiers;

determining dimensional aspects of the movable real object from the projected image;

computing a corresponding dimensional identity and location of the object at an object point relative to the view plane and wherein the object point is spaced by a second distance from the user's viewpoint; and,

verifying whether the dimensional identity and location are reasonably consistent with predetermined standards for the object.

*b1* 2. (original) The method as claimed in claim 1 wherein the preselected object comprises a reference panel such as a screen, tablet or piece of paper and the identifying includes recognizing a corner of the panel.

3. (original) The method as claimed in claim 2 wherein the determining comprises calculating distances between corners and a center point of the reference panel.

4. (original) The method as claimed in claim 3 wherein the computing comprises converting the calculated distances to the dimensional identity and location based on an assumption that the reference panel is structurally flat.

5. (previously amended) The method as defined in claim 1 wherein the verifying includes testing from at least one of the tests of (a) whether the object has expected dimensions or

proportions, (b) whether the corners are right angles, (c) whether a center point matches when calculated from distinct sets of the corners, (d) whether the corners are generally within a common plane, and (e) whether the object lies within an expected viewing range.

6. (original) The method as defined in claim 1 wherein the preselected object is comprised of three equidistant line points and the determining comprises detection of projected dimensions of the three equidistant line points.

7. (original) The method as defined in claim 6 wherein the computing comprises calculating object coordinates in real space of the object at the object point based on the projected dimensions of the three equidistant line points in the view plane and known augmented-reality display system geometric dimensions.

8. (currently amended) A method for identifying a movable piece of paper in a variable three-dimensional viewing area of an augmented-reality display system comprising steps of:

identifying an object at a viewing plane in the three-dimensional viewing area having a characteristic representative of the piece of paper wherein the characteristic is exclusive of preselected registration marks and printed identifiers;

locating a plurality of corners of the object;

calculating a dimensional representation of the object in the viewing plane from the locations of the corners;

unprojecting the dimensional representation to calculate a plurality of object coordinates representative of a size of the object and a distance of the object from the viewing plane; and,

comparing the object coordinates with predetermined standards indicative of the piece of paper for verifying the object as the piece of paper.

9. (original) The method as defined in claim 8 wherein the calculating includes identifying a diagonal between the corners comprised of three equidistant line points.

10. (original) The method as defined in claim 9 wherein the identifying includes identifying a center point of the diagonal.

11. (original) The method as defined in claim 8 wherein the unprojecting includes calculating the object coordinates based on dimensions of the object in the viewing plane and display system geometrics.

12. (original) The method as defined in claim 8 wherein the comparing includes testing from at least one of the tests of (a) whether the object has expected dimensions or proportions, (b) whether the corners are right angles, (c) whether a center point matches when calculated from distinct sets of the corners, (d) whether the corners are generally within a common plane, and (e) whether the object lies within an expected viewing range.

13. (currently amended) An augmented-reality display system for verifying a presence of a predetermined and movable real reference frame in a three-dimensional space within a system image, comprising:

a real item disposed within a three-dimensional view plane of the system;

a sensing device for identifying from the view plane a characteristic of the real item associated with the predetermined reference frame wherein the characteristic is exclusive of preselected registration marks and printed identifiers; and,

a controller for determining dimensions of the real item within the view plane, for computing a corresponding dimensional identity and location of the real item relative to the view plane, and for verifying whether the dimensional identity and location correspond with the presence of the predetermined reference frame.

14. (original) The system as defined in claim 13 wherein the real item comprises a piece of paper.

15. (original) The system as defined in claim 14 wherein the controller includes means for computing three dimensional object coordinates of the piece of paper relative to the view plane.

16. (previously amended) The system as defined in claim 14 wherein the controller includes means for testing from at least one of the tests of (a) whether the object has expected dimensions or proportions, (b) whether the corners are right angles, (c) whether a center point matches when calculated from distinct sets of the corners, (d) whether the corners are generally within a common plane, and (e) whether the object lies within an expected viewing range.

17. (previously added) The method as defined in claim 8 wherein the unprojecting comprises unprojecting a plurality of dimensional representations of the object attributable to movement of the object in the variable viewing area.